HERPES SIMPLEX, GENITAL AND NEONATAL *(initial infection only)*

DISEASE REPORTING

In Washington

DOH receives approximately 1,811 (1998) to 2,010 (2000) reports of initial infection genital herpes and neonatal (5 [1994] to 1 [2000] per year) for an average rate of 34/100,000 persons.

Purpose of reporting and surveillance

- To detect outbreaks, monitor epidemiologic trends and target outreach activities to prevent the spread of disease.

Reporting requirements

- Health care providers: notifiable to Local Health Jurisdiction within 3 work days
- Hospitals: no requirements for reporting
- Laboratories: no requirements for reporting
- Local health jurisdictions: notifiable to DOH Infectious Disease and Reproductive Health within 7 days of case investigation completion or summary information required within 21 days

CASE DEFINITION FOR SURVEILLANCE

Clinical criteria for diagnosis

A condition characterized by visible, painful genital or anal lesions. The clinical diagnosis of herpes is both insensitive and non-specific.

Laboratory criteria for diagnosis

Since the distinction between HSV serotypes influence prognosis and counseling, HSV should be confirmed by laboratory testing (virologic or type-specific serologic tests).

Virologic Tests:

- Isolation of HSV in cell culture – the preferred virologic test in patients who present with genital ulcers or other mucocutaneous lesions, but sensitivity declines rapidly as lesions begin to heal.
- HSV antigen detection kits – do not distinguish HSV-1 from HSV-2.

- PCR (polymerase chain reaction) assays – highly sensitive, but role in diagnosis not well-defined; however it is available in some laboratories and is the test of choice for HSV in spinal fluid and CNS disease.
- Cytologic detection of cellular changes of HSV is insensitive and nonspecific. Tzank test and pap smears should not be used.

Type-specific Serologic Tests:

Both type specific and nonspecific antibodies to HSV develop during the first several weeks following infection and persist indefinitely. Accurate tests rely on glycoprotein G2 for HSV-2 and G1 for HSV-1 detection. Older tests remain on the market and should not be used. Therefore, the serologic type-specific gG-based assays currently approved by the FDA should be specifically requested. These include POCkit™ HSV-2 (Diagnology); HerpSelect™-1 ELISA immunoglobulin G (IgG) or HerpSelect™-2 IgG (Focus Technology) and HerpSelect 1 and 2. Sensitivities for HSV-2 vary from 80% to 98% and false-negative results may occur, especially in the early stages of infection. Therefore, repeat testing or a confirmatory test (e.g., an immunoblot assay if the initial test was an ELISA) may be indicated in some settings. Screening for HSV-1 and –2 infection in the general population is not indicated.

Case definition

- Probable: a clinically compatible case (in which primary and secondary syphilis have been excluded by appropriate serologic tests and darkfield microscopy, when available) with either a diagnosis of genital herpes based on clinical presentation (without laboratory confirmation) or a history of one or more previous episodes of similar genital lesions.
- Confirmed: a clinically compatible case that is laboratory confirmed.

A. DESCRIPTION

1. Identification

Herpes simplex is a viral infection characterized by latency and a tendency to localized recurrence. Most infected persons have mild or unrecognized infection. There are two etiologic agents, herpes simplex virus (HSV) types 1 and 2. The primary infection with HSV-1 may be mild and inapparent and occur in early childhood. In approximately 10% of primary infections, overt disease may appear as an illness of varying severity, marked by fever and malaise lasting a week or more; it may be associated with gingivostomatitis accompanied by vesicular lesions in the oropharynx, severe keratoconjunctivitis, a generalized cutaneous eruption complicating chronic eczema, meningoencephalitis or some of the fatal generalized infections in newborn infants (congenital herpes simplex).

HSV-1 causes about 2% of acute pharyngotonsillitis, usually as a primary infection.

Reactivation of latent infection commonly results in herpes labialis (fever blisters or cold sores) manifested by superficial clear vesicles on an erythematous base, usually on the face or lips, which crust and heal within a few days. Reactivation is precipitated by various forms of trauma, fever, physiologic changes or intercurrent disease, and may also involve other body tissues; it occurs in the presence of circulating antibodies, which are seldom elevated by reactivation. Severe and extensive spread of infection may occur in those who are immunosuppressed.

CNS involvement may appear in association with either a primary infection or a recrudescence. HSV-1 is a common cause of meningoencephalitis. Fever, headache, leukocytosis, meningeal irritation, drowsiness, confusion, stupor, coma and focal neurologic signs may occur and are frequently referable to one or the other temporal region. The condition may be confused with a variety of other intracranial lesions including brain abscess and tuberculous meningitis. Because antiviral therapy may reduce the high mortality, PCR for DNA of herpes virus in the CSF or biopsy of cerebral tissue should be considered early in clinically suspected cases to establish the diagnosis.

Genital herpes, usually caused by HSV-2, occurs mainly in adults and is sexually transmitted. Primary and recurrent infections occur, with or without symptoms. In women, the principal sites of primary disease are the cervix and the vulva; recurrent disease generally involves the vulva, perineal skin, legs and buttocks. In men, lesions appear on the glans penis or prepuce, and in the anus and rectum of those engaging in anal sex. Other genital or perineal sites, as well as the mouth, may be involved in either gender, depending on sexual practices. HSV-2 has been associated with aseptic meningitis and radiculitis rather than meningoencephalitis.

Neonatal infections can be divided into three clinical presentations: disseminated infections involving particularly the liver, encephalitis and infection limited to the skin, eyes or mouth. The first two forms are often lethal. Infections are most frequently due to HSV-2, but HSV-1 is also common. Risk to the infant depends on two important maternal factors: stage of pregnancy at which the mother excretes HSV, and whether the infection is primary or secondary. Only excretion at the time of delivery is dangerous to the newborn, with the rare exception of intrauterine infections. Primary infection in the third trimester in the mother raises the risk of infection from 3% to over 30%, presumably because earlier maternal immunity confers a degree of protection.

2. Infectious Agent

Herpes simplex virus in the virus family Herpesviridae, subfamily Alphaherpesvirinae. HSV types 1 and 2 can be differentiated immunologically (especially when highly specific or monoclonal antibodies are used) and differ with respect to their growth patterns in cell culture, embryonated eggs and experimental animals.

3. Worldwide Occurrence

Worldwide; 50%-90% of adults possess circulating antibodies against HSV-1; initial infection with HSV-1 usually occurs before the 5th year of life, but more primary infections in adults are now being reported. HSV-2 infection usually begins with sexual activity and is rare before adolescence, except in sexually abused children. HSV-2 antibody is found in about 20%-30% of Americans over age 12. The prevalence is greater (up to 60%) in lower socioeconomic groups and persons with multiple sexual partners.

4. Reservoir

Humans.

5. Mode of Transmission

Contact with HSV-1 virus in the saliva of carriers is probably the most important mode of spread. Infection on the hands of ungloved health care personnel (e.g., dentists) from patients shedding HSV results in herpetic whitlow. Transmission of HSV-2 is usually by sexual contact. Both types 1 and 2 may be transmitted to various sites by oral-genital, oral-anal or anal-genital contact. Transmission to the neonate usually occurs via the infected birth canal, but less commonly occurs in utero or postpartum.

6. Incubation period

From 2-12 days.

7. Period of communicability

HSV can be isolated for 2 weeks and occasionally up to 7 weeks after primary stomatitis or primary genital lesions. Both primary and recurrent infections may be asymptomatic. After either, HSV may be shed intermittently from mucosal sites for years and possibly lifelong, in the presence or absence of clinical manifestations. In recurrent lesions, infectivity is shorter than after primary infection, and usually the virus cannot be recovered after 5 days.

8. Susceptibility and resistance

Humans are probably universally susceptible.

B. METHODS OF CONTROL

1. Preventive measures:

a. Health education and personal hygiene directed toward minimizing the transfer of infectious material.
b. Avoid contaminating the skin of eczematous patients with infectious material.

c. Health care personnel should wear gloves when in direct contact with potentially infectious lesions.
d. Cesarean section is advised before the membranes rupture when primary genital herpes infections occur in late pregnancy because of the risk of highly fatal neonatal infection (30-50%). Use of scalp electrodes is contraindicated. The risk of fatal neonatal infection after recurrent infection is much lower (3-5%), and cesarean section is advisable only when active lesions are present at delivery.
e. Use of latex condoms in sexual practice may decrease the risk of infection; most patients with primary genital HSV should receive antiviral therapy.

2. Control of patient, contacts and the immediate environment:

a. Report to local health authority.
b. Isolation: Contact isolation for neonatal and disseminated or primary severe lesions; for recurrent lesions, drainage and secretion precautions. Patients with herpetic lesions should have no contact with newborns, children with eczema or burns or immunosuppressed patients.
c. Concurrent disinfection: None.
d. Quarantine: None.
e. Immunization of contacts: None.
f. Investigation of contacts and source of infection: Counseling of infected persons and their sex partners is critical to management of genital herpes both to help patients cope with the infection and to prevent sexual and perinatal transmission.
g. Specific treatment: The acute manifestations of herpetic keratitis and early dendritic ulcers should be treated in consultation with an ophthalmologist. Corticosteroids should never be used for ocular involvement unless administered by an experienced ophthalmologist. Acyclovir IV is of value in herpes simplex encephalitis, but may not prevent residual neurologic problems.
    - *First episode*: acyclovir 400 mg PO three times a day for 7-10 days, or acyclovir 200 mg PO five time a day for 7-10 days, or famciclovir 250 mg PO three times a day for 7-10 days, or valacyclovir 1 g PO twice a day for 7-10 days.
    - *Episodic Therapy for Recurrent Genital Herpes***:** acyclovir 400 mg PO three times a day for 5 days, or acyclovir 200 mg PO five times a day for 5 days, or acyclovir 800 mg PO twice a day for 5 days, or famciclovir 125 mg PO twice a day for 5 days, or valacyclovir 500 mg PO twice a day for 3-5 days, or valacyclovir 1.0 g PO once a day for 5 days.
    - *Suppressive Therapy for Recurrent Genital Herpes:* acyclovir 400 mg PO twice a day, or famciclovir 250 mg orally twice a day, or valacyclovir 500 mg PO once a day , or valacyclovir 1.0 gram PO once a day.
    - *Neonatal infections*: Neonatal infections should be treated with acyclovir 20 mg/kg body weight IV every 8 hours for 21 days for disseminated and CNS disease, or 14 days for disease limited to the skin and mucous membranes.

3. Epidemic measures

Not applicable.

4. International measures

None.